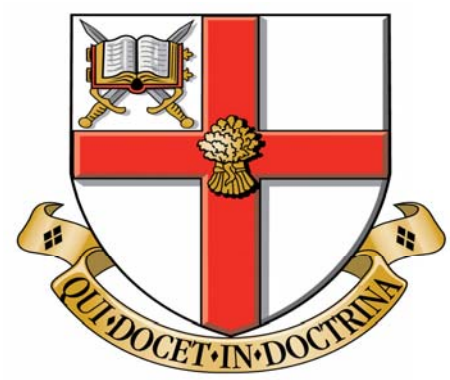

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Does calorie information on menu labeling affect consumer food and beverage purchases?

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Abstract

Does calorie information on menu labeling affect consumer food and beverage purchases?

Author: Clara McDermott

The increase in diet related diseases is considered to be primarily caused by a changing environment that encourages poor dietary habits and a sedentary lifestyle (Swinburn, Caterson, Seidell & James, 2004). Research by Ng et al. (2014) has found that the number of obese and overweight people worldwide has increased from 857 million in 1980 to 2.1 billion in 2013. Bowman and Vinyard (2004) make the point that frequent consumption of fast food, in particular, is associated with poorer diet quality and risk of obesity for both children and adults. This literature review examines studies both in favour of calories being posted on menus in restaurants that argue that the implementation of this will have a positive effect on the obesity crisis and those that argue that its implementation will have a limited effect. This review looks at various studies that argue that the policy is likely only to affect certain population segments or socio economic groups.

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Chapter One Introduction

Dr Donal O'Shea (2011), in a speech made at a public health forum "Obesity in Ireland- is it spreading?" defined obesity as "any excess body fat that compromises a person's health". Hill and Wyatt (2005) make the point that understanding obesity and addressing the pandemic begins with an understanding of energy balance. Weight gain, they argue, is primarily a result of energy imbalance- we are consuming too many calories for our limited energy needs given the nature of the modern sedentary lifestyle. Estimates of annual deaths attributable to obesity in the U.S range between 280,000 and 400,000 ranking obesity as the second leading preventable cause of death, just behind tobacco use (Mokdad, Marks, Stroup & Gerberding, 2004). It is recognized that a combination of genetic, metabolic, psychological and environmental factors are involved in the onset and maintenance of obesity (Rodin, 1981). While it is clear that the reasons for the epidemic are multifaceted, survey and economic data suggest much of the rise of the obesity epidemic can be attributed to rise in calorie intake as opposed to change in energy expenditure (Cutler, Glaeser & Shapiro, 2003). Research from the U.S Department of Agriculture supports this and estimates that between 1985 and 2000 daily per capita energy consumption increased by 12% or 300 calories per day (Putnam, Allshouse & Kantor, 2002).

The increased prevalence of obesity related diseases has been blamed in part on the increased consumption of foods prepared outside the home (Burton, Creyer, Kees & Huggins, 2006). This is associated with higher intakes of energy and fat (Ayala et al., 2008). Research from Ireland shows that 24% of eating/ drinking occasions involved food cooked outside the home (The National Adult Nutrition Survey, 2011). The aim of this literature review is to see if the introduction of calorie information on menus will have the effect of reducing intakes of energy and fat by consumers.

Government policy in many European countries and in the U.S has attempted to reduce obesity by influencing individual food choices. The hope is that educating consumers about nutritional content will lead them to select healthier options. Silver and Bassett (2008) support this and maintain that in an effort to refocus the fight against obesity, elected officials and public health professionals are shifting towards legislative policies that provide consumers with calorie information on the foods they are consuming outside the home.

A potential strategy for reversing the obesity epidemic is point of sale calorie menu labelling in restaurants. As experts increasingly point to the environment as the primary driver of obesity (Cohen, 2008, Booth, Pinkston & Poston, 2005), calorie menu labelling has received growing attention as a potential policy lever to reduce energy intake and promote energy balance.

Chapter Two The obesity crisis and calorie menu labelling

Research from the National Adult Nutrition Survey in Ireland in March 2011 found that the prevalence of obesity in 18-64 year olds has increased significantly since 1990 from 8% to 26% in men and from 13% to 21% in women. These results highlight that obesity has become a major public health concern in Ireland. Research by Ng et al. (2014) has demonstrated that obesity and overweight rates in Ireland are among the highest in Western Europe. The figures for Irish men over 20 years of age show that 66% are above their recommended weight while 51% of women of the same age are.

Research to explore how nutrition labellining may impact food selection sales and consumer response is limited in Ireland. The U.S Patient Protection and Affordable Care Act 2010 requires a "succinct statement concerning suggested daily calorie intake" that is "designed to enable the public to understand in the context of a total daily diet, the significance of calorie information" (as cited in Stein, 2011). The Act states that the calorie information must be on the menu board and adjacent to the name of the menu item. There must also be a statement on the menu or menu board which puts the information into context of a recommended daily total calorie intake.

Research by Miller et al. (2013) found that in the U.S 64% of consumers agree that it is important to eat healthily and pay attention to nutrition compared to 57% who said so in a 2010 survey. In a November 2012 study by the National Restaurant Association in the U.S, it was found that 65% favour nutritional labelling in restaurants with the strongest demand for listing of calories. The results also revealed that 70% of adults care that chain restaurants disclose calorie and other nutritional information on their menus and 68% want this information on all restaurant menus not just chains (Miller et al., 2013).

A study by Tangari, Burton, Howlett, Cho & Thyroff (2010) used a qualitative approach to the potential effects of menu labelling. The specific question posed to consumers was "Would calorie labels affect what you order at restaurants?". The sample size was relatively small at 222. The blog responses indicated that 179/ 222 (80%) answered affirmatively. A number of respondents (32) (14%) mentioned how having the label information would allow them to eat out more often because they would have a better understanding how the meal fits into their overall diet. The blog comments in this research (Tangari et al., 2010) along with previous research (Chandon & Wansink, 2007) all suggest that people in general have difficulty estimating the number of calories associated with restaurant meals. This argument is supported by multiple studies which have determined poor consumer awareness in relation to calories in dishes, sometimes by a significant amount (Burton et al., 2006, Tangari & Burton, 2008, Chandon &

Wansink, 2007). Research from the U.S suggests that individuals consume larger portions than standard when eating out and inaccurately assess the total amount of energy in restaurant fare (Burton et al., 2006).

A study by Burton et al. (2006) in the U.S suggested that menu labelling could prove to be a useful tool to help customers decrease calorie consumption. If consumers were regularly consuming more than 600 calories more than they estimated, they would be adding up to 30,000 calories a year to their diet leading to a theoretical estimated weight gain of just over 4 kilograms annually. Burton et al. (2006) support the point that a key challenge to limiting energy intake is the public's significant underestimation of the amount of calories in the food they consume. They found that in a study (sample size of 193) that asked participants to estimate the calorie content of their food for nine restaurant entrees, 90% underestimated the calorie content of less healthy items by an average of 600kcal.

The calorie menu labelling initiative has been launched in many fast food chains both in the U.S and in the U.K and supporters of the initiative point to the fact that consumers need nutritional information in order to make informed choices. A key presumption in these initiatives (which are legislative in some states in the U.S) is that the visibility of calorie information on menus in restaurants will translate to changes in consumer choice at point of purchase. Specifically, consumer awareness of the calorie

levels of the less healthful food items which are typically underestimated may result in more accurate product evaluations and in turn healthier choices (Tangari et al., 2010).

Given that the above evidence supports a clear desire on the part of consumers to have calorie information made available to enable their decision making process, the next part of the review will review academic studies which have addressed the impact of calorie menu labelling.

Chapter Three Research showing the effectiveness of calorie posting

A large scale study by Bassett et al. (2008) (which surveyed 7,318 customers from 275 randomly selected restaurants of 11 food chains in the U.S) showed that when fast food patrons are provided calorie information prominently prior to purchase, many will see it and reduce their calorie intake. The results of the study revealed that when fast food chain outlets posted calorie information clearly, among consumers at a Subway fast food outlet, those who reported seeing the calorie information (98% of the overall sample) purchased 52 fewer calories. Of this 98%, 37% reported that this information had an effect on their purchase. Of the 37% who reported that the information had an effect on their purchase, the study showed that this group purchased 99 fewer calories than those who reported seeing the information and saying it had no effect. Overall, the study authors recommended that public health authorities and restaurant establishments

should consider interventions to make calorie information more prominently displayed at point of purchase to increase information, reduce calorie intake and reduce obesity related morbidity and mortality (Basset et al., 2008).

A study by Dumanovsky et al. (2011) supports the introduction of calorie information being made available in restaurants. The study measured two items 1) change in mean calorie content (kcal) per purchase before and after regulation and 2) mean calorie content (kcal) purchased among customers who said that they used the calorie information when deciding what to order. The study had a sample size of 7,309 adult customers in 2007 (before the implementation of calorie labelling in New York) and 8,489 in 2009 (after the implementation of calorie labelling in New York). The results showed that 15% of customers reported using the calorie information in their purchase decision (as against 37% who reported using the calorie information in the study by Bassett et al. (2008). Women were more likely to report using calorie information than men (18% vs 13%), as were customers in the wealthiest neighbourhoods (19% versus 17% in neighbourhoods with moderate poverty and 12% in stores in the poorest neighbourhoods). The youngest customers were the least likely to report using calorie information. After regulation, three major food chains with large sample sizes showed statistically significant reductions in mean calorie content per purchase- a 44kcal reduction in McDonalds, 80kcal reduction in Au Bon Pain and 59kcal reduction in KFC. Again, customers who reported using the information ordered 106 fewer calories on average compared with

customers who didn't see or didn't use the information. This result is similar to the previous study highlighted by Bassett et al. (2008) which reported that customers who used the calorie information reduced their calorie intake by 99 calories. This pattern was consistent for both men and women of all age groups and across neighbourhoods (Dumanovsky et al., 2011). The potential is for this calorie reduction to have a real public health impact. Furthermore, no negative consequences were revealed (Dumanovsky et al., 2011)

The potential for calorie menu labelling for making a real impact on public health is further supported by a 2009 study conducted in California, in the U.S. This study used a health impact assessment to quantify the potential impact of a state calorie labelling menu law. This estimated that if 10% of patrons would order reduced calorie meals in response to calorie postings, this would result in an average reduction of 100 calories per meal for those participants. Based on these results, it was predicted that menu labelling would halt 40.6% of the 3.06 million kilogram average annual weight gain in the country population aged 5 years and older. The study suggests that mandatory menu calorie labelling could have a sizable salutary impact on the obesity epidemic, even with only modest changes in consumer behaviour (Kuo, Jarosz, Simon & Fielding, 2009).

Another important finding reported is that the provision of calorie information on menus can lead consumers to make what is known as a

"compensation effect". A study by Roberto et al. (2010) in the U.S was designed to test whether menu labelling influences the total calories ordered and consumed during a dinner meal as well as food consumed after the meal (i.e. the compensation effect). It also aimed to assess whether the effects would be stronger if people were provided information about recommended daily calorie requirements. The study had 303 participants all over the age of 18 who were randomly assigned to one of three menu labelling conditions 1) a menu without calorie labels 2) a menu with calorie labels and 3) a menu with calorie labels as well as a label reading that "the recommended daily calorie intake for an average adult is 2000 calories". The results revealed that calorie information on restaurant menus reduced the total amount of calories people ordered and consumed for a meal, improved their ability to estimate calories consumed and perhaps most importantly affected their eating later in the day, in that they consumed fewer calories in the same day to compensate for a large calorie consumption in the restaurant. Participants of both calorie label conditions ordered significantly fewer calories than those in the no calorie labels group. When the two calorie label conditions were combined, the group's participants consumed 14% fewer calories than those in the no calorie labels condition. On average, people in the calorie labels group and the calorie labels plus recommended daily allowance information groups consumed 124 and 203 fewer calories respectively at the dinner meal than those in the no calorie labels condition. The study reveals that most striking result was the impact of adding daily calorie requirement information to the menu and how

this affected the participants eating habits during the remainder of the day. The study noted a 250 calorie difference between calories with recommended daily allowance information group and the no calories label group which could have a significant public health impact (Wang, Gortmaker, Sobol & Kuntz, 2006, Kuo, Jarosz, Simon & Fielding, 2009). It appears putting calorie information in context can empower consumers to make more informed choices.

While the above studies have found evidence in favour of consumers altering food choices in the face of calorie information being made available to them, other studies have suggested that the effect is not as clear cut.

Chapter Four Research demonstrating the lack of effectiveness of calorie posting

Studies indicate that people who use food labels typically have superior dietary quality based on lower intakes of fat and higher intakes of fruit and vegetables when compared with those who don't use food labels (Kreuter, Brennan, Scharff & Lukwago,1996, Huang et al., 2004). However, Grunert and Wills (2007) in a review of European research on consumer response to nutrition labelling, point to the fact that there is little insight into how labelling information is used in a real world shopping situation and more importantly how it will affect a consumer's dietary pattern. Whether this

finding will be the same with the provision of calorie information on restaurant menus remains to be seen.

A study in 2006 in the U.S with 649 participants found that up to 57% respondents reported that they would not use food label information in restaurants if it were available (Krukowski, Harvey-Berino, Kolodinsky, Narsana & Des Sisto, 2006). A more recent study by Elbel, Kersh, Brescoll and Dixon (2009) reported on the effects of posting of calorie information on consumer behaviour in New York City. Receipts and survey responses were collected from 1,156 adults at fast food restaurants in low income, minority New York communities. These were then compared to a sample in Newark, New Jersey. The study results of the New York participants came to the conclusion that labels had no effect on consumer choice. It looked at 14 locations of Wendy's, McDonalds, Burger King and KFC specifically in low income neighbourhoods in New York City comparing calories per customer two weeks before labelling versus four weeks after. It found that only about one in seven customers made use of the calorie information and overall there were no significant changes in calorie content of food purchased per customer. Participants of the study (in New York city) purchased a mean of 825 calories before menu labelling was introduced and 846 calories post introduction. The calorie content of food purchased in these chain restaurants in the Newark study before and after the introduction of calorie labelling showed no significant difference (823 calories before labelling and 826 after). The study focused on low income minority communities and found that calorie labelling increased the percentage of consumers who

reported seeing calorie labels and thereby the number of people who stated that the information influenced their food choices. However, despite this, the results of the study did not confirm that menu labelling influenced the total number of calories purchased at population level. This illustrates that self perception does not equal reality in that even though the participants in the studies felt the calorie information positively impacted their choice of food, this did not translate to real reduction in calories purchased. The study sample consisted primarily of ethnic minorities in low income areas and the authors of the study did make the point that other groups may respond differently to labelling (Elbel et al., 2009). These results contrast with the study mentioned earlier by Dumanovsky et al. (2011) which found that customers in the wealthiest neighbourhoods were more likely to use calorie information on menus.

However the findings are more interesting when looking at trends within individual chains- the ones that had introduced calorie information were the same chains that had expanded their menus to offer more low calorie options. This indicates that mandatory calorie labelling can affect a restaurant's marketing tactics encouraging them to market low fat options more aggressively (Elbel et al., 2009).

The reason why the above studies show a lack of impact of calorie menu labelling could be that it is extremely difficult to get consumers to alter their eating habits. This is evidenced in a study in Belgium by Hoefkens,

Lachat, Kolsteren, Van Camp and Verbeke (2011). The study examined the food choices of 224 customers of two university canteens. The results revealed that the posting of calorie information in university canteens did not effectively influence meal choices. This study was conducted in two canteens between October 2008 and May 2009. The sample was mostly women who generally have greater weight control involvement and a stronger interest in healthy eating than do men (Wardle et al., 2004). The ineffectiveness of the intervention in this particular sample and setting showed the enormous challenge of changing dietary habits of young adults for whom price, taste and appearance are often more important than the healthfulness of foods (Roininen, Lahteenmaki & Tuorila, 1999, Verbeke, 2006).

It was highlighted earlier that the availability of calorie information may have a greater effect on certain population segments. One study pointed to the fact that the calorie labelling initiative is only likely to target specific population segments (Dumanovsky et al., 2011) while others show its weak impact on low income ethnic minorities (Elebel et al., 2009). A study by Variyam and Cawley, (2006) supports this. The study evaluated the impact of the Nutrition Labelling Education Act (NLEA) specifically on obesity prevalence and found that this Act led to the reduction of obesity for only one demographic group- white females. The study suggested a purely informational approach is unlikely to lessen calorie intake in immediate meal choices.

A number of studies confirm this point that labelling will be beneficial only for some consumers and some food items (Burton, Howlett & Tangari, 2009, Howlett, Burton, Bates & Huggins, 2009) and they suggest a non-uniformity of effects across customer segments and menu choices (Stewart & Martin, 1994). Loewenstein, Brennan and Volpp (2007) argue that the standard economic approach of simply providing more information fails to exploit what we know about human motivation, self control and behavioural change. Multiple studies show that the results of societal cost or economic analyses of obesity have often led to the conclusion that informational strategies aimed at targeting obesity have had and are only likely to have a limited effect (Finkelstein, Ruhm & Kosa, 2005, Lynch & Zauberman, 2006). The outcomes and potential benefit to public health of calorie menu labelling initiatives should also consider effects within specific target segments (e.g. those who are versus those that are not motivated/ health conscious, those aware versus not aware of the calorie nutrition disclosure, obese/ overweight versus. normal weight consumers) (Burton & Kees, 2012).

Other studies point to the fact that consumers rate other attributes above the importance of calories. A study by Howlett et al. (2009) identified that the most important attribute in the respondent's purchase decision was taste. The rating for taste was significantly higher than those of both calorie level and satiability. This is supported by research which has shown that the primary food choice motive of consumers is taste followed by

convenience (Glanz, Basil, Mailbach, Goldberg & Snyder, 1998, Steptoe & Wardle, 1999, Prescot, Young, O'Neill, Yau & Stevens, 2002).

The European Food Information Council (EUFIC) reviewed the scientific evidence on the impact of nutrition labelling on obesity which was published between 2007 and 2012. It was concluded that most people can use the different nutrition labelling schemes available to identify more healthful and less calorific choices but they lack the motivation to include nutrition information in their purchasing decisions. Rather price, taste and time constraints are key aspects to consider for more effective nutrition labelling. The key finding was that to date no scientific evidence exists from Europe to indicate any impact of nutrition labelling (positive or negative) on body weight (Genannt Bonsmann & Wills, 2012).

For the majority of menu items and consumer transactions, calorie labelling may be unlikely to have a significant effect on consumer choices (Elbel, Gyamfi & Kersh 2011, Finkelstein, Strombotne, Chan & Krieger, 2011). Changing established and often repetitive consumer behaviours in the marketplace is always challenging. For calorie/ nutrition disclosures to affect food choices, consumers must have the motivation to process and use the information (Berman & Lavizzo-Mourey 2008, Howlett et al., 2009, Keller et al., 1997). Also, in the restaurant environment, other product attributes (e.g. taste, price, presentation meal size) may be overwhelming at the point

of choice even for highly motivated diners (Burton, Howlett & Tangari, 2009, Glanz et al., 1998, Harnack et al., 2008).

Burton and Kees (2012) make the point that in conjunction with this motivational factor, diners must have sufficient knowledge or a context to allow interpretation of the information (e.g. how favorable or unfavorable is a 1200 calorie meal / item). This point is confirmed by the study reviewed earlier by Roberto et al. (2010) which illustrated that putting calorie information in context can empower consumers to make more informed choices.

Howlett et al. (2009) comment that a calorie disclosure must provide new information or some "surprise" in order for it to have an effect on consumer behavior. Research suggests that calorie labelling has a substantial effect only for items with levels that deviate from customer expectation (Howlett et al., 2009).

The studies reviewed have illustrated that away from home food consumption is an important determinant of dietary intake and risk of obesity. Therefore, there is considerable interest at government policy level in designing effective societal level interventions which reduce energy consumption outside the home. One such way to do this is through the widespread introduction of calorie menu labelling. A better understanding of the effects of calorie posting may encourage policy makers to adopt this

policy which is likely low cost, particularly for large food outlets with standard menus. In turn, the likely "calorie shock" about the high number of calories in food options which has been reported in the mass media, may encourage restaurant chains to highlight lower calorie options and/ or introduce healthier options. More research is needed to understand the most effective mode for presenting consumers with calorie information and whether it varies by sociodemographic characteristics.

Chapter Five Conclusion

The results of the above studies show that there is a complex interaction of factors at play when it comes to consumer behaviour. Studies in the U.S by Bassett et al. (2008) confirmed a positive effect with 52 fewer calories being purchased by those consumers who saw the calorie information. Over a third of the sample (37%) in this study reported that the information affected their purchase. Another study by Dumanovsky et al. (2011) in the U.S supports this, noting that those who reported using the calorie information purchased 106 fewer calories than those who didn't. The study by Roberto et al. (2010) found that the provision of calorie information on restaurant menus reduced calorie intake at the meal and affected eating patterns later in the day, in what is known as the "compensation effect". Conversely, another study has found that calorie menu labelling had no affect on consumer purchases (Elbel et al., 2009). This study did focus on low income neighbourhoods. Due to concern about satiation and value for

money some of these consumers may be among those least likely to consider calorie level a crucial attribute when making food choices. Similarly the choice of a university canteen in the study by Hoefkens, Lachat, Kolsteren, Van Camp and Verbeke (2011) measured a specific population group and different results might have been found in doing the same trial in a workplace canteen.

It does seem however, according to research that mandatory calorie posting may be a useful tool for promoting energy balance (Bleich & Pollack, 2010).

As discussed earlier, making calorie and nutrient information easily available at the point of purchase may help consumers make healthier choices. It may also lead them to make what is known as the "compensation effect" – if an item that is high in calories is consumed, they will reduce their energy intake for the rest of the day. However, it should be noted that lack of easily accessible accurate nutrition information may only be part of the obesity problem. Another important factor has been found to be customer motivation. Calorie information will not benefit consumers who lack the motivation to use it during their decision making process (Howlet et al., 2009). Findings also suggest that for any attempt to achieve an extensive population based reduction in calorie levels for all restaurant meals consumed, it may be necessary to target the less motivated segment. Adjusting crystallized attitudes and motivations toward healthy consumption is an extremely difficult task that has been a goal of public health officials

for decades (Burton & Kees, 2012). Mann et al. (2007) support this and maintain that eating behaviour is notoriously resistant to change. It seems probable that the education component that accompanies the labelling campaign will be extremely important in promoting any broad based change in consumption behavior (Burton & Kees, 2012). Simply displaying information about the calorie value of food may fail to translate into behavioural changes in line with choosing healthier food options. Menu labels need to be coupled with additional policy approaches.

There is hope that in the long term the mere presence and repetitive exposure to calorie information will help create a more calorie vigilant populace. However, overall, the research reviewed doesn't conclude that menu labelling is an ineffective policy as it may encourage chain restaurants to offer more nutritious or otherwise improved menu offerings which could be profoundly influential. Given that the majority of the studies reviewed have been in the US, the goal of my research conducted in a coffee chain shop in Ireland will be to judge the calorie awareness of the customers. It will also aim to see what factors lead to their purchase decisions other than calorie content. Finally, the research will reveal whether calorie menu labelling has a stronger effect on higher earning socio-economic groups or if there is a difference according to gender.

No single solution will reverse the obesity epidemic and calorie menu labelling is no exception (Berman & Lavizzo- Mourey, 2008). Given the scale

and scope of the obesity problem, greater attention must be given to the overall range of policy options and to ways of making policies such as menu labelling optimally effective (Elbel et al., 2009).

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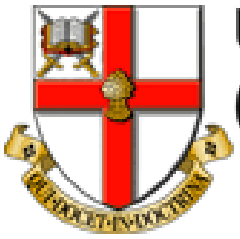

University of Chester

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MScIn Weight Management - Dublin

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Does calorie information on menu labeling affect consumer food and beverage purchases?- a study on an Irish coffee chain shop, Insomnia

Clara McDermott F14941

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Title: Does calorie information on menu labeling affect consumer food and beverage purchases?- a study on an Irish coffee chain shop, Insomnia

Indication of journal appropriate to publication of paper: American Journal of Public Health

The journal chosen is the American Journal of Public Health due to the volume of work that has been published in relation to purchasing behaviour since the implementation of calorie menu labelling in the U.S . The mission of the journal is to advance public health research, policy, practice and education and to publish the best scientific research in the field of public health. (http://ajph.aphapublications.org/).

Abstract

Author: Clara McDermott

Objectives: The impact of menu calorie labels on food and beverage choices was assessed in a chain Irish coffee shop. The hypothesis was that that the provision of simple and easily accessible calorie information on restaurant menus could benefit public health (in terms of reducing obesity levels in Ireland) by facilitating healthier food choices and that the posting of calorie information has the potential to reduce calorie intakes of consumers. The aims of the study were to a) assess what factors lead to a consumer's choice of beverage and snack (purchase factor decisions) b) assess how "calorie aware" the customers were and c) to see if certain population segments were more likely to be affected by calorie menu labelling than others as was revealed in the literature review (such as females or higher income earners).

Method: Participants were recruited randomly (n=50) to fill in a questionnaire in a chain coffee shop, "Insomnia", where the menu displayed calorie information for beverages and cakes and pastries but not for sandwiches. Another 50 participants were then recruited at random two weeks later when the same shop had introduced calorie information for the sandwich range. The same questionnaire was completed with the addition of two extra questions which aimed to see if consumers noticed the calorie menu labelling that was introduced on the sandwich range and if it affected their purchase decision.

Results: The sample displayed a high level of calorie awareness with a total of 55% of the overall sample confirming the correct answer to the recommended average requirement for calories dependant on gender. Taste was rated as the most important purchase factor (extremely important) by 63% of the overall sample with a further 20% rating it as very important in relation to beverage purchase. Of the overall sample, 73% confirmed that they would like to see the calorie information on the menu board. In terms of calorie menu labelling affecting purchase decisions, there was found to be no significant difference between its effect on males and females. There was also no correlation between income and desire to see calorie menu labelling implemented.

Conclusions: Widespread public support for the implementation of calorie posting mean it is likely to be a somewhat effective informational tool for customers. Other overriding purchase factor decisions are likely to have more influence on choice of beverage and snack, namely taste and price.

Content of Appendices

1. Appendix 1 Participant Information sheet
2. Appendix 2 First sample Questionnaire
3. Appendix 3 Second sample Questionnaire
4. Appendix 4 Ethical Approval Letter, University of Chester

Chapter One Introduction

Estimates of annual deaths attributable to obesity in the U.S range between 280,000 and 400,000, ranking obesity as the second leading preventable cause of death, just behind tobacco use (Mokdad, Marks, Stroup & Gerberding, 2004). Figures from "The Report of the National Taskforce on Obesity" (2005) estimates that annually in Ireland approximately 2000 premature deaths are attributable to obesity at an estimated cost of 4 billion euros to the Irish State. Research published by the Food Safety Authority of Ireland (FSAI) (2012) shows that Ireland has the second highest obesity rate in Europe and since 1990 obesity rates have trebled in men and doubled in women.

One policy that might help improve diet quality or the amount of energy consumed that has been implemented in the U.S in certain states (New York was the first U.S state to implement the law in 2008) is the requirement for chain restaurants to post kilocalorie (calorie) information on menus and menu boards. The aim of menu labelling is to inform consumers about the energy content of foods which are consumed outside the home. Statistics from the FSAI (2012) show that almost a quarter of the energy intake of Irish adults under the age of 65 is consumed outside the home. This indicates what an important role the restaurant sector in Ireland has to play when it comes to informing food choice among customers.

In Britain, some restaurants such as Burger King, McDonalds and Starbucks have voluntarily posted calorie information (FSAI, 2012). Legislation has not yet been passed in Ireland

requiring mandatory calorie labelling as it is hoped that restaurants will voluntarily post this information (FSAI, 2012).

The company that this research will focus on is Insomnia. This coffee shop was established in 1997 and has since expanded to 60 outlets across Ireland. All 60 stores post calorie information in relation to coffees and beverages and last year extended this information across their sandwich range. In 2010, the company was amongst the first in Ireland to voluntarily post calorie information and marketed this transition as a trial in one of their stores in conjunction with "Operation Transformation", a popular Irish TV series that is aired in January every year following the weight loss progress of a team of participants (retrieved from www.insomnia.ie).

Chapter Two Methods

Participants were recruited randomly (n=50) to fill in a questionnaire in a chain coffee shop, Insomnia, where the menu displayed calorie information for beverages and cakes and pastries but not for sandwiches. This was done in April 2013 before the implementation of calorie information on the sandwich range and was done in one coffee outlet, Insomnia in Dun Laoghaire, Co. Dublin. Another 50 participants were then recruited two weeks later when the same shop had introduced calorie information for the sandwich range. The same questionnaire was completed with the addition of two extra questions "Did you see the calorie information on the menu before you made your purchase decision?" and if so "Did the calorie information affect your purchase?. The only exclusion criteria were people

under the age of 18. All participants were provided with one questionnaire and a Participant Information Sheet, detailing the purpose of the research.

Chapter Three Study design

The hypothesis was that that the provision of simple and easily accessible calorie information on restaurant menus could benefit public health (in terms of reducing obesity levels in Ireland) by facilitating healthier food choices and that the posting of calorie information has the potential to reduce energy intakes of consumers. The study aimed to test this hypothesis by asking participants to record their chosen snack or beverage (or both if applicable) and to estimate the calorie content. A cross reference was then done with the calorie information available on the company's website to see if their estimation was correct or not.

The questionnaire aimed to determine gender, BMI, income category and frequency and purpose of visit to the shop. It also aimed to determine consumer's overall knowledge in relation to energy intake to see if consumers are generally well informed about calories prior to calorie posting and whether they could accurately identify the energy content in their chosen snack and beverage. The questionnaire was also designed to identify what factors other than calories lead to a consumer's choice in beverage/ snack. The questionnaire also asked if the person had ever looked up the information online or had any desire to see the calorie information displayed on the menu board. This was to ascertain if there was a public demand for calorie menu labelling.

The draft questionnaire has been adapted from one used by students in Stanford University in a study done in January 2010 on calorie posting (Bollinger, Leslie, & Sorensen, 2010). The Insomnia customers in this study were offered a free coffee in exchange for their participation.

Chapter Four Results

The first sample of 50 participants had 82% females and 16% males– on the basis of self report, one person did not fill in gender (2%). The second sample again had a majority of 74% female participants with 24% males and one person (2%) failing to tick the "Gender" box. The age and income categories for both samples are illustrated in tables 1 and 2.

TABLE 1 Age Categories of Questionnaire Participants

Age	Percentage (First sample)	Percentage (Second Sample)
18-25	10%	14%
26-35	20%	26%
36-45	32%	24%
46-55	22%	18%
56 or over	16%	18%

Table 1 shows that the majority of the participants were above the age of 35 (70% in the first sample and 60% in the second sample).

TABLE 2 Income categories of Questionnaire Participants

Income Euros/ year	Percentage (First sample)	Percentage (Second sample)
Unemployed	4%	6%
Homemaker	8%	10%
Under 15k	6%	10%
15,001-25k	4%	8%
25,001-35k	18%	20%
35,001-55k	34%	26%
55,001 and above	20%	14%
Not answered	6%	6%

The average weekly Irish wage is €695.80 per week, equating to €36,181 annually (Central Statistics Office,2013). The sample in Table 2 illustrates that 54% were either just below or above the average industrial wage (above 35k) in sample 1 and 40% in sample 2.

In terms of Body Mass Index (BMI), 34% of the first sample did not fill in either height or weight so a calculation on BMI could not be done. For these participants, the corresponding figure in the second sample of 50 was 44%. The majority of the first sample (58%) fell within the normal weight category (18-25 kg/m^2 BMI) with 2% recorded as BMI less than 18 (underweight) and 4% with a BMI of between 26 and 30 (overweight), with a further 2% classified as obese with a BMI of 30 kg/m^2 . The majority of the second sample again fell within the normal BMI category at 40% with 16% recorded as being overweight (BMI between 26 and 30 kg/m^2).

The majority of the first sample (68%) visited the coffee chain more than three times a week while the corresponding figure was 26% in the second sample, with 20% of participants recorded as saying they visited twice a week.

A total of 54% confirmed the correct answer to the question “What is the recommended estimated average requirement for calories for your gender?” in the first sample while 42% answered this question incorrectly and 4% of respondents did not answer the question. Of the 42% who answered incorrectly, 26% underestimated the number of calories needed rather than overestimating. In the second sample, 56% answered the question correctly while 38% answered incorrectly and 6% did not answer the question. Of the 38% who answered incorrectly, 24% underestimated calorie allowance rather than overestimating it.

A total of 66% of the first sample answered affirmatively to the question “Do you typically read nutritional labels when shopping”. The corresponding figure for the second sample was 70% confirming that they do read nutritional labels.

Two questions in the questionnaire asked participants to rate how many calories were in their chosen beverage and snack if applicable. The question first asked the participant to state the chosen beverage and snack and then to estimate from a range of up to five options the estimated calorie content. In the first sample, 68% of participants did not record the beverage so a calculation was unable to be done. A total of 18% answered correctly as to the calorie content with 4% answering incorrectly. The remaining 10% did state beverage and did estimate calories but the answer could not be calculated due to the fact that they had not recorded the size of the beverage.

In the second sample, 66% of participants did not record the beverage so a calculation was unable to be done. Of the remaining 34% of the sample, 26% answered the calorie content correctly with 8% answering incorrectly.

In relation to the participant's chosen snack, the questionnaire asked participants to state the snack they had ordered and estimate the calorie content. However**,** 56% of the first sample did not purchase a snack while 28% purchased a snack but did not state what it was so it was then impossible to cross reference the calorie content with nutritional information on the company's website. Of the 16% of the sample who purchased a snack and stated what it was, 2% recorded the calorie content of their food correctly with 14% recording it incorrectly.

In the second sample, 28% did not purchase a snack while 48% did purchase a snack but did not state what it was, again making cross referencing impossible. A further 2% of the sample did not answer the question. Of the remaining 22% of the sample who did purchase a snack and state what it was, 4% answered the calorie content correctly while 6% answered incorrectly. The answers of the remaining 12% could not be cross referenced as they did not complete the answer in full, for example stating their chosen snack as "Soup" without any reference to what type it was.

This meant the study is unable to assess whether consumers are typically underestimating energy content in beverages and food. The fact that 4% answered correctly and 6% incorrectly as to how many calories were in their food is based on relatively low numbers, with the majority of the sample neglecting to state what their chosen snack or beverage

was. The study was thus unable to conclude whether a key challenge to limiting energy intake is the public's underestimation of the amount of calories in the food they consume (Burton et al., 2006).

In relation to purchase factor decisions, the two samples were merged. This was due the fact that a large part of both samples did not purchase a snack (meaning any food item). Of the total sample, 41% did not purchase a snack. It was decided to merge the two samples to get a better understanding of purchase factor decisions with a larger sample.

For those consumers who purchased snacks (meaning any food item), taste was the most important purchase factor decisions by the majority of the participants with 30% rating it as extremely important. A further 15% rated taste as very important, with 10% rating it as moderately important. When asked the same question in relation to price of the snack, 17% rated it as extremely important, with 14% rating it as moderately important. The percentages who rated calories as an extremely important purchase factor decision were noticeably lower with only 7% rating it as extremely important and 9% rating it as very important. The majority of the sample rated themselves as neutral (16%) in relation to calories. The above results illustrate how although participants may notice calorie information, the difficulty lies in getting them to place more importance on this compared to other purchase factor decisions such as taste and price.

In relation to the purchase factor decisions for beverages, the full results are outlined in figures 1, 2 and 3 for the overall sample.

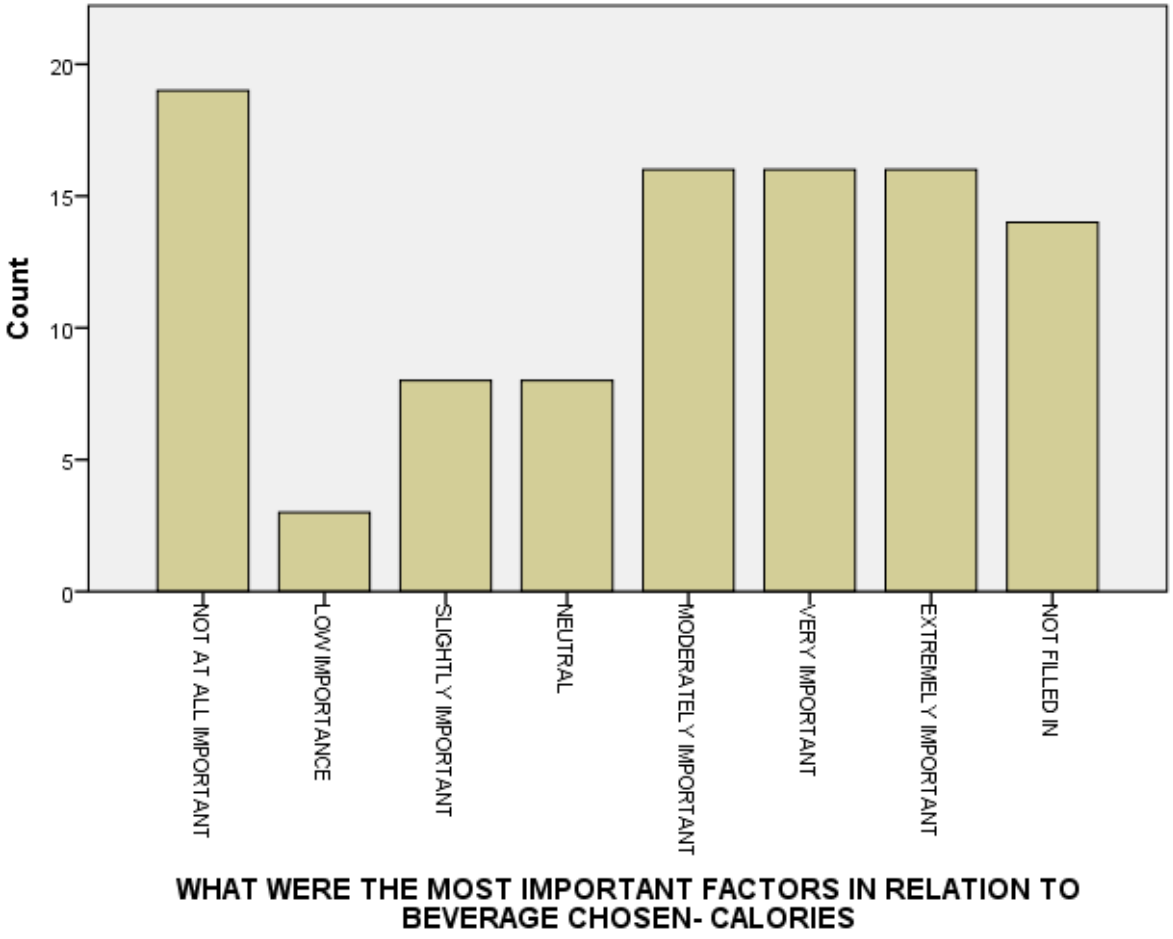

Figure 1- both samples combined.

When it came to the importance of calories, only 16% rated it as extremely important with a further 16% rating it as very important. The majority of the sample (19%) rated it as "Not at all important".

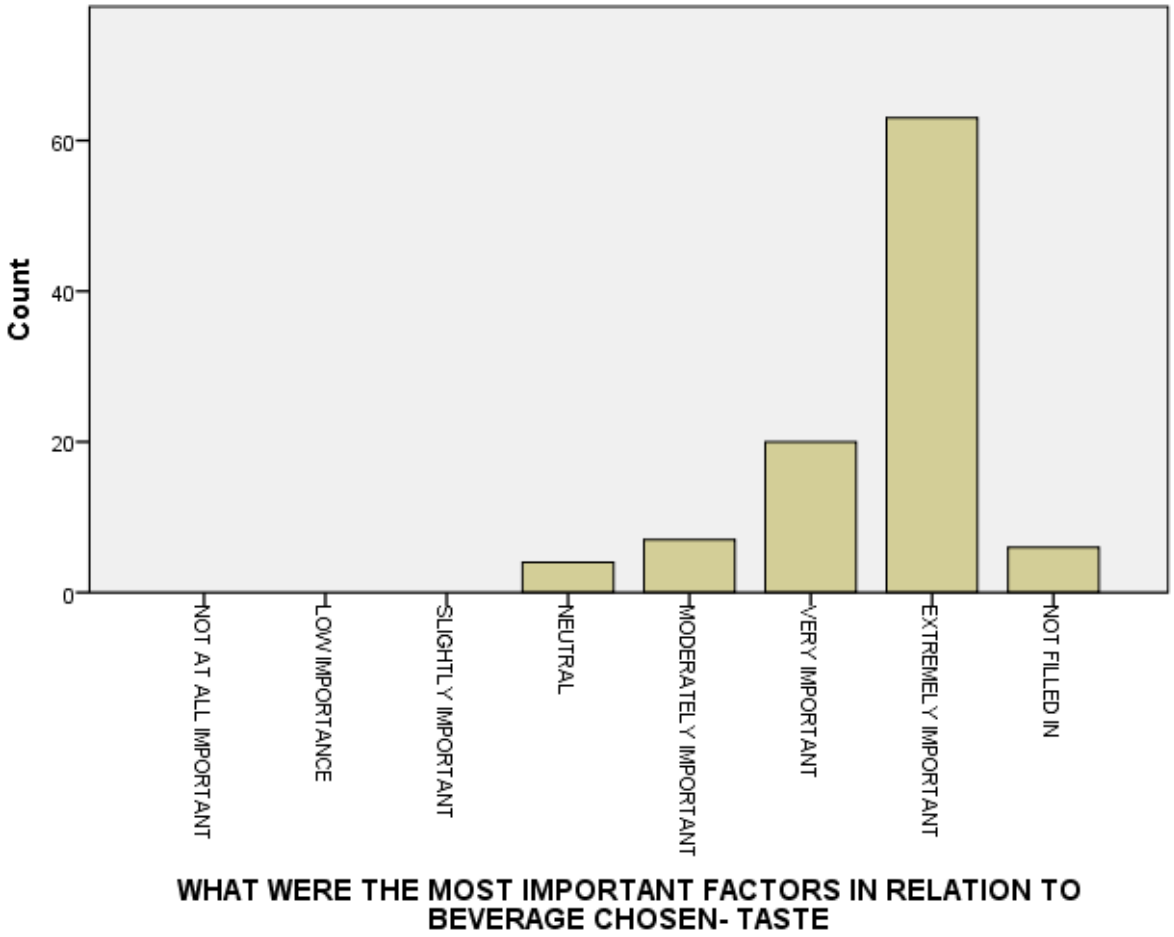

Figure 2- both samples combined

The above bar charts show that again, the most important purchase factor decision for participants was taste, with 63% rating it as extremely important and a further 20% rating it as very important.

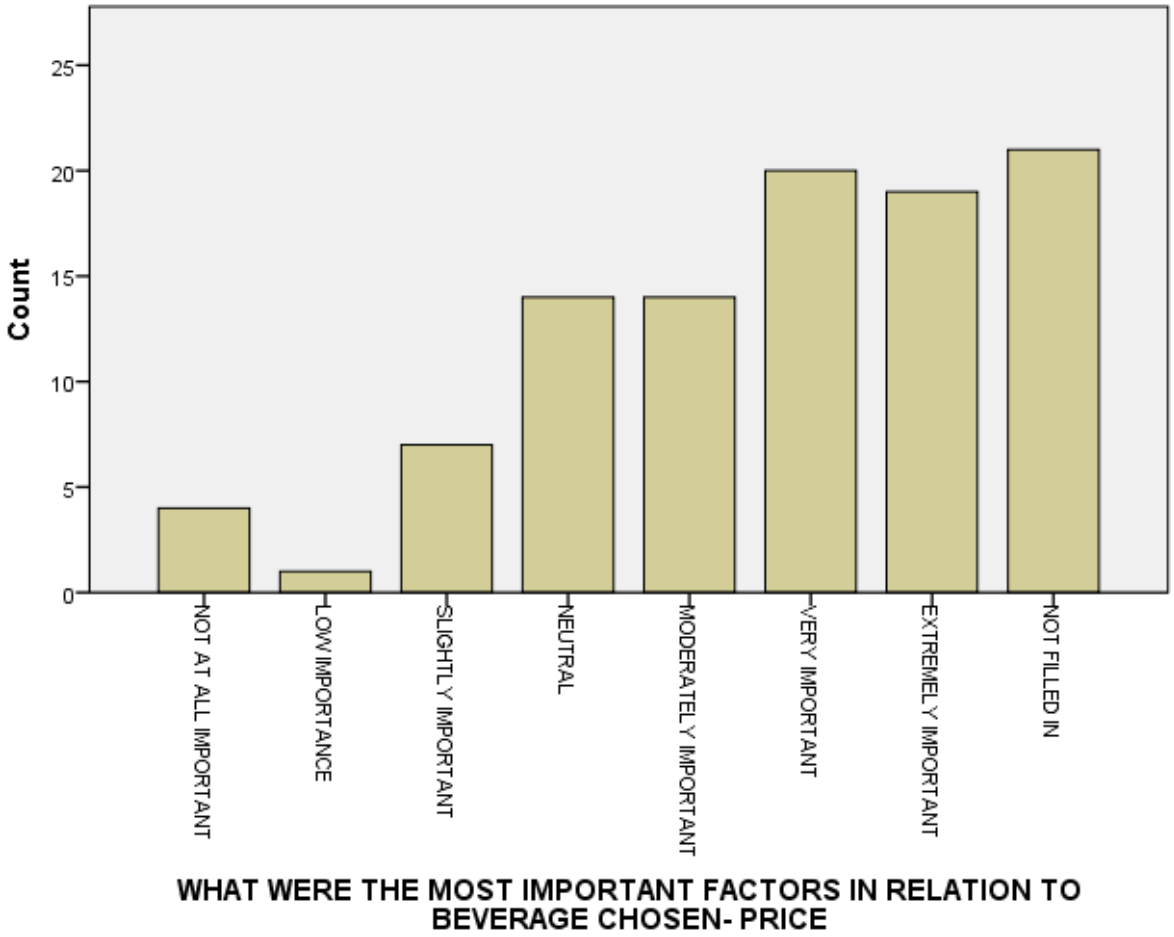

Figure 3- both samples combined

In relation to price as a purchase factor decision, 19% rated it as extremely important with 20% rating it as very important. The majority of participants (21%) did not fill this section of the questionnaire in.

The majority of the first sample (74%) confirmed that they would like to see calorie information on the menu board, with 24% rating themselves as indifferent and 2% confirming they would not like to see the information. The results were similar in the second sample with 72% confirming they would like to see the information, 22% rating

themselves as indifferent and 6% confirming they would not like to see the information. Only 8% of the first sample had looked up calorie information online with 12% of the second sample confirming they had looked up calorie information online. The key point is that only a small minority of both samples had ever checked online for calorie information with the majority of both samples confirming they would like to see the information on the menu. This is consistent with another study by Berman and Lavizzo- Mourey (2008) who reported levels of public support as high as 84% in their study. It would appear then that there is widespread public support to making calorie information available.

The second sample was asked an additional two questions on their questionnaire. The majority of the second sample (52%) confirmed they did not see the calorie information displayed before making their purchase and 40% confirmed they did with 8% of participants not answering the question. Of those participants who did see the calorie information, the results are outlined in Figure 4. More females (8%) than males (1%) rated calories as extremely important in their purchase decision.

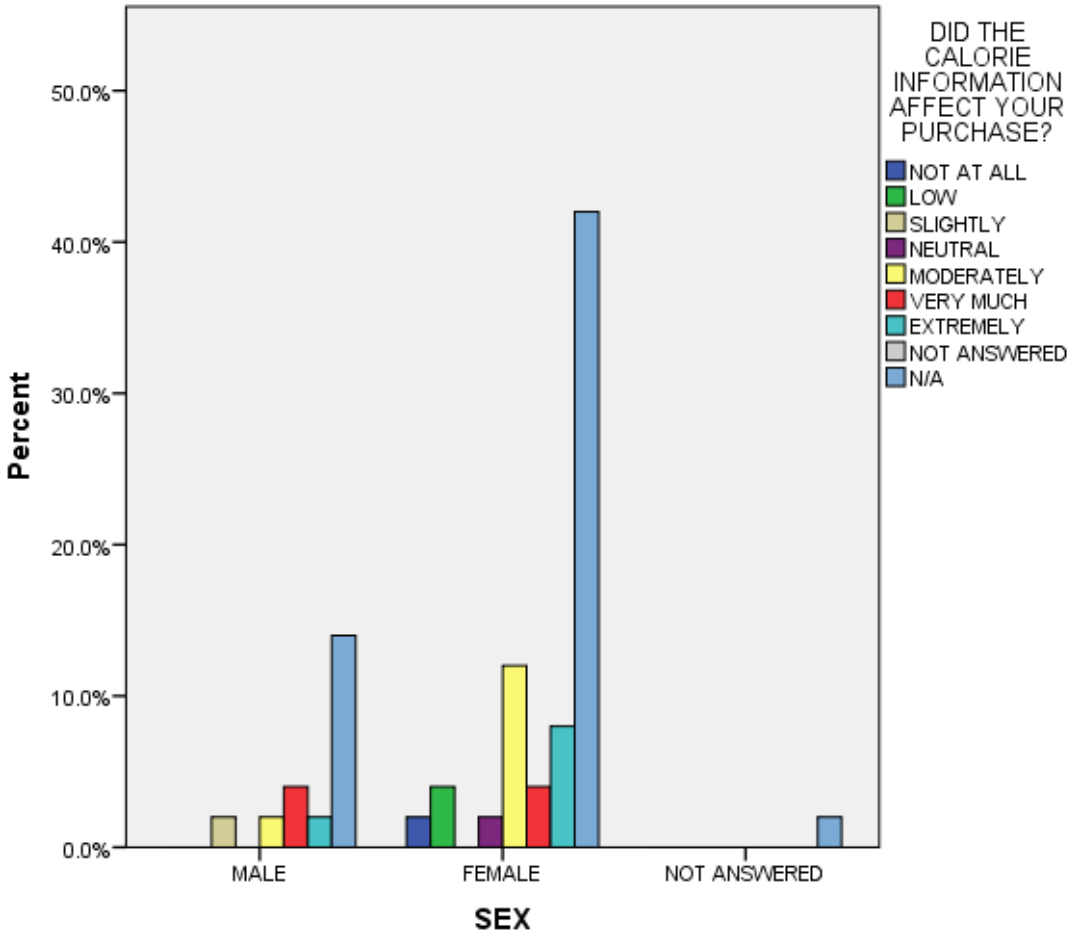

Figure 4 both samples combined

Figure 4- Relationship between gender and whether calorie information affected purchase.

There was found to be no correlation between income and desire to see calorie information on the menu board. This was ascertained through a scatter plot which showed a zero correlation. There was also found to be no correlation between BMI and calorie awareness through a scatter plot although as the questionnaire used self reported height and weight to calculate BMI, there was a high number of missing values as 39% of the overall sample did

not state either height or weight or both which meant a BMI calculation was unable to be performed.

Chapter Five Discussion

The majority of the first sample (68%) visited the coffee chain more than three times a week while the corresponding figure was 26% in the second sample, with 20% of participants recorded as saying they visited twice a week. This illustrates that a high number of participants are regular customers and might be expected to have a higher awareness of whether or not the chain shop displays calories on the menu board in comparison to an occasional or once off customer. Every participant in the questionnaire purchased a beverage of some kind but 56% of participants did not purchase any food in the first sample and 28% did not purchase any food in the second sample. The participants displayed quite a high level of "calorie awareness" with 54% in the first sample and 56% in the second sample answering the question about "What is the recommended estimate average requirement for calories for your gender?" correctly. Again, the data was essentially the same in both samples in relation to reading nutritional labels. A high percentage of the sample stated that they read nutritional labels when shopping (66% in the first sample and 70% in the second sample). However, this did not translate into a high "Yes" answer for the question "Did you see the calorie information on the menu before your purchase decision" with only 40% confirming they did when the question was asked in the second sample. This might indicate that more work needs to be undertaken by the company to ensure the prominence of calorie information displayed.

The results of this study compare favorably with a study done by Dumanovsky et al., (2011). The results of the 2011 study in New York city found that 15% of customers reported using the calorie information in their purchase decision. It also concluded that women were more likely to report using the calorie information than men (18% vs. 13%) as were customers in the wealthiest neighbourhoods. Study results also revealed that the youngest customers were least likely to report using calorie information. After the introduction of calorie menu labelling on the sandwich range, the results of the Insomnia study revealed that 14% of the second sample stated that calorie information had a "moderate" affect on their purchase, with 8% stating it "very much" affected their purchase. A further 10% said it "extremely" affected their purchase. However, the results of the Insomnia study did not reveal a gender difference. Of those participants who did see the calorie information, the male and female values are essentially the same percentage, showing no gender difference. There was also found to be no correlation between income and desire to see calorie menu labelling implemented.

The results of the Insomnia study confirmed the difficulty of getting consumers to alter their eating habits in the fact of calorie information being displayed at point of purchase. This indicates that most people are not influenced by calorie menu labelling. The study by Wardle et al., (2004) found that the posting of nutrition information in university canteens did not effectively change meal choices and nutrient intakes and showed the enormous challenge of changing dietary habits of adults whom factor in taste, price and appearance above calories (Rominen, Lahteenmaki & Tuorila, 1999, Verbeke, 2006). The Insomnia study revealed that taste was the most important factor in purchase decisions (for beverages) with 62% of the first sample rating it as extremely important and 64% of the second sample

rating it as extremely important. In relation to snacks chosen, 16% (the majority of the sample) rated taste as the extremely important and in the second sample, 44% (again the largest group in the sample) rated it as extremely important. Only 12% of the sample rated calories as extremely important in the first sample and 20% in the second sample. These results are consistent with a study by Howlett, Burton, Bates and Huggins (2009) which identified taste as the most important attribute in the respondent's purchase decision. Research by the European Food Information Council (EUFIC) 2012 supports this and reveals that while most people use nutrition labeling schemes to identify less calorific choices, they lack the motivation to include this nutrition information into their purchasing decisions. The impact of other factors in consumer purchasing decisions such as price, taste and time constraints are therefore key aspects to consider for more effective nutrition labelling (Genannt Bonsmann & Wills, 2012).

Chapter Six Limitations of the study

The biggest limitation of the study was the relatively small sample size. The sample was skewed in terms of gender with overall percentage of 78% female and 20% male with 2% not filling in the gender section of the questionnaire. Any results therefore might be generally more applicable to women rather than men.

A further weakness of the study was that questionnaire used self reported height and weight to calculate Body Mass Index and thus overall across the two samples, 39% of people did not fill either their height or weight. Thus it was not possible to calculate BMI. Therefore, the study cannot evaluate whether overweight or obese people are less or more

aware of calorie information on menus as no correlation can be run between BMI and calorie awareness (this was assessed through a number of questions on the questionnaire such as “What is the recommended estimated average requirement for calories for your gender?”, “Do you read nutritional labels when shopping?” and “Would you like to see calorie information on the Insomnia menu board”). This is due to the relatively low numbers of participants who recorded being overweight or obese (6% in the first sample and 16% in the second sample).

The design of the questionnaire meant that the majority of the participants failed to record their chosen beverage or snack (68% of the first sample did not record a beverage and 66% of the second sample did not record a beverage despite 100% purchasing one). This meant that even if they did estimate the calorie content in the question below of their purchase, it could be not proven whether this estimation was correct. Therefore, it was impossible to identify if the public were significantly underestimating calories consumed and a whether a key challenge to limiting energy intake is the public’s underestimation of the calories they consumed (Burton et al, 2006).

Chapter Seven Recommendations for future research

It could be argued that to halt the obesity crisis, the arguments needs to move in a different direction away from a singular focus on calories and more towards a focus on the nutrient content of the food. Prentice and Jebb (1995) argue that the fat content of our diet has increased and there is evidence that indicates that consumption of a high fat diet

undermines normal mechanisms regulating energy balance in humans. This could point to the fact that it is not necessarily increased calorie consumption that is causing weight gain but more likely detrimental changes in our diet- that is a move away from natural, unprocessed foods to a more highly refined diet high in saturated fat and indeed many empty calories. Drewnowski and Popkin (1997) support this and make the point that there has been a wholesale change in our diets in recent decades. As national income rises and populations become more urban, societies enter into different stages of the nutrition transition. Gradually, diets high in complex carbohydrates and fibre give way to more varied diets with an inevitable higher proportion of fats, saturated fats and sugar. They go on to further state that food imports, fast foods and a rising consumption of sugars and animal fats are responsible for global rates of obesity. Drewnowski and Popkin (1997) make the point that analyzing the impact of urbanization on diet structure is a key issue for public health policy.

Recommendation for future research is how the public can be best informed on the health content of food and beverages without a singular focus on calorie content. The calorie labelling initiative has been too recently introduced for any substantive studies to be conducted in terms of its impact on the obesity crisis. This study has confirmed that other purchase factor decisions, namely taste, are rated as more important than calories by most participants in the survey. On this basis, the real challenge is to find a way to better motivate people towards healthier choices in away from home food consumption. The singular focus on calories does not appear to be having the impact that public health professionals hoped for.

Chapter Eight Conclusion

Given widespread recognition among experts that the obesity epidemic is largely driven by environmental changes (Cohen, 2008 & Booth, Pinkston & Poston, 2005) there is considerable interest in designing effective, societal level interventions. Calorie menu labelling has public support and is likely a relatively low cost policy tool for the Irish government to implement and can be seen as a useful tool for promoting energy balance (Bleich & Pollack, 2010). The actual costs of the initiative tend to be borne by the food suppliers. Whether this intervention will have any real impact on the obesity crisis remains to be seen. The evidence presented illustrates the difficulty in getting consumers to factor calorie information in above other attributes such as taste, price and convenience. The argument that the health rating of a food item cannot be determined by calorie content is also an important one. Educating the public about food and nutrition is likely to be a better strategy to improve the long term health of a nation and halt the obesity crisis. In the short term, however, it is likely that politicians will turn to quick wins in terms of the implementation of policies to halt obesity.

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Participant information sheet

Does calorie information on menu labelling affect consumer food and beverage purchases?

You are being invited to take part in a research study. The following information is to enable you to understand the purpose of the research. Please read carefully and ask if there is anything you are unclear of.

What is the purpose of the study?

The research is being undertaken on Insomnia customers. The project is to find out if calorie information on menu labelling affects consumer food purchases.

Why I have been chosen?

Participation is voluntary and the only qualifying criteria are to have purchased a drink or food item.

Do I have to take part?

The choice to participate is entirely yours. If you decide to complete the questionnaire you can still withdraw at any time.

What will happen to me if I take part?

You will complete this short questionnaire and the results of the total of about 100 questionnaires will be collated. No one will be identifiable in the final report. The questionnaire should take no more than 5 minutes to complete.

What are the possible disadvantages of taking part?

None- there are no disadvantages or risks to participating.

What are the possible benefits of taking part?

You will be contributing to the debate on whether the posting of calorie information is an effective government health strategy and also you will be provided with a free coffee voucher.

What if something goes wrong?

If you wish to complain or have any concerns, you may contact Professor Sarah Andrew, Dean of the Faculty of Applied Sciences, University of Chester, Parkgate Road, CH1 4BJ, 00 44 1244 513055.

Will my taking part in the study be kept confidential?

All information which is collected through the questionnaire will be kept strictly confidential and you are not required to give any personal details.

What will happen to the results of the research study?

The results will be written up into a dissertation for my final project of my MSc. Individuals who participate will not be identified in any results or publication.

Who is organising the research?

The research is conducted by Clara McDermott as part of her MSc in Weight Management within the Department of Clinical Sciences at the University of Chester. The study is organised with supervision from the department.

Who may I contact for further information?

Clara McDermott :

Thank you for your interest in this research.

University of Chester

Participant information sheet

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Who may I contact for further information?

Clara McDermott

Thank you for your interest in this research.

University of Chester

Questionnaire

1. Sex:

1. MALE ❑
2. FEMALE ❑

2. Age:

1. Under 18 ❑
2. (18-25) ❑
3. (26-35) ❑
4. (36-45) ❑
5. (46-55) ❑
6. (56 or over) ❑

3. Income details:

1. Unemployed ❑
2. Homemaker ❑
3. Under €15,000 ❑
4. €15,000- €25,000 ❑
5. €25,001-€35,000 ❑
6. €35,001-€45,000 ❑
7. €45,001-€55,000 ❑
8. €55,001-€65,000 ❑
9. €65,001 and above ❑

4. Weight (if don't know please state unknown) ❑

5. Height (if don't know, please state unknown ❑

6. How many times do you visit Insomnia? Please tick appropriate box.

1. Occasionally ❑
2. Once a week ❑
3. Twice a week ❑
4. More than three times a week ❑
5. Once a month ❑
6. Less than once a month ❑

7. Which of the following do you visit Insomnia for? Please tick appropriate box.

1. Morning coffee ❑
2. Morning coffee and pastry/ snack ❑
3. Lunch ❑
4. Afternoon coffee ❑
5. Afternoon coffee and pastry/ snack ❑

University of Chester

8. What is the recommended estimated average requirement for calories for your gender?
Please tick appropriate box.

1. 1500 calories ..... ❑
2. 2000 calories ..... ❑
3. 2500 calories ..... ❑
4. 3000 calories ..... ❑

9. **Do you typically read nutritional labels when shopping?** Please tick appropriate box

1. YES ..... ❑
2. NO ..... ❑

10. **If applicable, how many calories are in the beverage you ordered today?**
Please state your chosen beverage.....and then tick appropriate box.

1. Under 100 calories..... ❑
2. 100-199 calories ..... ❑
3. 200-299 calories ..... ❑
4. 300 calories and above ..... ❑

11. If applicable, how many calories are in the snack you ordered today?
Please state your chosen snack .....and then tick appropriate box.

1. Under 100 calories ..... ❑
2. 100-199 calories ..... ❑
3. 200-299 calories ..... ❑
4. 300-399 calories ..... ❑
5. 400 -499 calories ..... ❑
6. 500 calories and above ..... ❑

12. What were the most important factors in making your purchase decision in relation to the snack chosen (if applicable)? Please choose the closest option on the scale.

1. Taste (not important) 1 2 3 4 5 6 7 (very important)
2. Price (not important) 1 2 3 4 5 6 7 (very important)
3. Calories (not important) 1 2 3 4 5 6 7 (very important)

13. What were the most important factors in making your purchase decision in relation to the beverage chosen (if applicable)? Please choose the closest option on the scale.

4. Taste (not important) 1 2 3 4 5 6 7 (very important)
5. Price (not important) 1 2 3 4 5 6 7 (very important)
6. Calories (not important) 1 2 3 4 5 6 7 (very important)

14. Have you ever looked up Insomnia calorie information online? Please tick appropriate box.

1. Yes ..... ❑
2. No ..... ❑

15. Would you like to see calorie information on the Insomnia menu board?
Please tick appropriate box.

1. Yes ..... ❑
2. No ..... ❑
3. Don't care ..... ❑

University of Chester

Questionnaire

1. Sex:

1. MALE ❑
2. FEMALE ❑

2. Age:

1. Under 18 ❑
2. (18-25) ❑
3. (26-35) ❑
4. (36-45) ❑
5. (46-55) ❑
6. (56 or over) ❑

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8. €55,001-€65,000 ❑
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5. Height (if don't know, please state unknown ❑

6. How many times do you visit Insomnia? Please tick appropriate box.

1. Occasionally ❑
2. Once a week ❑
3. Twice a week ❑
4. More than three times a week ❑
5. Once a month ❑
6. Less than once a month ❑

7. Which of the following do you visit Insomnia for? Please tick appropriate box.

1. Morning coffee ❑
2. Morning coffee and pastry/ snack ❑
3. Lunch ❑
4. Afternoon coffee ❑
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8. What is the recommended estimated average requirement for calories for your gender?
Please tick appropriate box.

1. 1500 calories ❑
2. 2000 calories ❑
3. 2500 calories ❑
4. 3000 calories ❑

University of Chester

9. **Do you typically read nutritional labels when shopping?** Please tick appropriate box
   1. YES ..... ❑
   2. NO ..... ❑

10. **If applicable, how many calories are in the beverage you ordered today?**
Please state your chosen beverage.....and then tick appropriate box.
   1. Under 100 calories..... ❑
   2. 100-199 calories ..... ❑
   3. 200-299 calories ..... ❑
   4. 300 calories and above ..... ❑

11. If applicable, how many calories are in the snack you ordered today?
Please state your chosen snack ……and then tick appropriate box.
   1. Under 100 calories ..... ❑
   2. 100-199 calories ..... ❑
   3. 200-299 calories ..... ❑
   4. 300-399 calories ..... ❑
   5. 400 -499 calories ..... ❑
   6. 500 calories and above ..... ❑

12. What were the most important factors in making your purchase decision in relation to the snack chosen (if applicable)? Please choose the closest option on the scale.

1. Taste	(not important)	1	2	3	4	5	6	7	(very important)
2. Price	(not important)	1	2	3	4	5	6	7	(very important)
3. Calories	(not important)	1	2	3	4	5	6	7	(very important)

13. What were the most important factors in making your purchase decision in relation to the beverage chosen (if applicable)? Please choose the closest option on the scale.

4. Taste	(not important)	1	2	3	4	5	6	7	(very important)
5. Price	(not important)	1	2	3	4	5	6	7	(very important)
6. Calories	(not important)	1	2	3	4	5	6	7	(very important)

14. Have you ever looked up Insomnia calorie information online? Please tick appropriate box.
   1. Yes ..... ❑
   2. No ..... ❑

15. Would you like to see calorie information on the Insomnia menu board?
Please tick appropriate box.
   1. Yes ..... ❑
   2. No ..... ❑
   3. Don't care ..... ❑

16. Did you see the calorie information on the menu before you made your purchase decision? If yes go to question 17. Please tick appropriate box.
   1. Yes ..... ❑
   2. No ..... ❑

17. Did the calorie information affect your purchase? Please choose the closest option on the scale.

Not at all	1	2	3	4	5	6	7 (a lot)

University of Chester

Faculty of Applied Sciences
Research Ethics Committee

Tel 01244 511740
Fax 01244 511302
frec@chester.ac.uk

Dear Clara,

Study title: **Does calorie information on menu labelling affect consumer food and beverage purchases?**
FREC reference: **737/12/CM/CS**
Version number: 1

Thank you for sending your application to the Faculty of Applied Sciences Research Ethics Committee for review.

I am pleased to confirm ethical approval for the above research, provided that you comply with the conditions set out in the attached document, and adhere to the processes described in your application form and supporting documentation.

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Application Form	1	October 2012
Appendix 1 – List of References	1	October 2012
Appendix 2 – C.V. for Lead Researcher	1	October 2012
Appendix 3 – Participant Information Sheet	1	October 2012
Appendix 4 – Questionnaire	1	October 2012
Appendix 5 – Email confirmation – Insomnia Coffee Company	1	October 2012

Response to FREC request for further information and clarification		December 2012
Appendix 1 – List of References	2	December 2012
Appendix 3 – Participant Information Sheet	2	December 2012
Appendix 4 – Questionnaire	2	December 2012
Appendix 5 – Advertisement Material	1	December 2012

With the Committee's best wishes for the success of this project.

Yours sincerely,

Dr. Stephen Fallows
Chair, Faculty Research Ethics Committee

Enclosures: Standard conditions of approval.

Cc. Supervisor/FREC Representative